

For Immediate Release:

## **New CULA™ GPU-Accelerated Math Library Brings Faster Solvers to Millions of Scientific Applications**

*CULA™ Offers Computational Speeds Up to 10X Faster than Standard CPU Libraries by Leveraging the Processing Power of NVIDIA GPUs*

**NVIDIA GPU Technology Conference, San Jose, Calif. — September 30, 2009—** EM Photonics, Inc. today announced the general availability of CULA™, an implementation of the most widely used functions from the industry-standard LAPACK linear algebra interface. CULA is accelerated using NVIDIA's massively parallel CUDA-enabled GPUs and allows millions of developers, engineers, and scientists to experience the computational performance of supercomputers right at their desk.

"We are impressed by CULA's early performance results and know that our customers will be happy to receive GPU support for Jacket functions, such as QR, LU, and SVD, built using this technology," said John Melonakos, CEO of AccelerEyes. "We are pleased to partner with EM Photonics in the delivery of the fastest LAPACK routines for the MATLAB community."

"Impressive stuff!" wrote one of CULA Beta testers on the CULA forums. "I did some benchmarking tests yesterday and used MKL on a dual core processor with 6GB versus a GeForce GTX260. When the CPU was running two threads I still got up to around 6 times speed on both QR decomposition and SVD (linear algebra functions)!" Another user wrote: "It works beautifully. I get 4 times faster execution than MATLAB's QR using four processor cores. SVD is 23 times faster for 1024x1024 matrices!"

"Applications ranging from video games, to medical imaging, to scientific computing have come to depend on the superior processing capabilities of GPUs. By every measure, this trend is rapidly growing and impacting more and more markets," said Eric Kelmelis, CEO of EM Photonics. "To bridge the current gap between what GPUs can offer and how they can be used to accelerate applications, we have developed CULA in close association with NVIDIA. A broad range of users took advantage of our beta release over the last few months and achieved 5-10x performance gains over CPU implementations. ."

"The CULA linear algebra library enables developers for a wide range of technical computing applications including computational fluid dynamics, electronic design automation, finite element analysis, and electromagnetic simulations, to take advantage of the performance boost of the GPU", said Andy Keane, General Manager for the Tesla high-performance computing group at NVIDIA. "With this release, EM Photonics is making a meaningful addition to the NVIDIA CUDA eco-system by providing a mature, complete math library".

### **Pricing and Availability**

CULA is available in three different versions: Basic, Premium and Commercial. CULA Basic is free of charge and includes six of the most popular LAPACK routines in single and single-complex precisions. CULA Premium costs \$395 and is a significantly more robust version with additional routines in single, double, single-complex, and double-complex precisions. CULA Commercial pricing is available upon request. For complete details, please visit [www.culatools.com](http://www.culatools.com).

### **Live Demonstrations at the NVIDIA GPU Technology Conference this week!**

Watch videos and live demos of CULA accelerating simulated tomography image reconstruction and digital watermarking of video at the EM Photonics booth #37. If attending the conference, do not miss our session "CULA: Robust GPU Accelerated Linear Algebra Libraries," on Thursday, October 1<sup>st</sup> at 2:00pm.

### **About CULAtools™**

CULAtools™ is EM Photonics' product family comprised of CULA™ Basic, Premium, and Commercial. CULA is our GPU-accelerated implementation of LAPACK – a collection of commonly used linear algebra functions used by millions of developers in the scientific and engineering community. After developing accelerated linear algebra solvers since 2004 for our clients, EM Photonics partnered with NASA Ames Research Center in 2007 to extend and unify these libraries into a single, GPU-accelerated package. Through a partnership with NVIDIA®, our GPU Gurus™ focused on developing a commercially available implementation of accelerated linear algebra routines. By leveraging NVIDIA's CUDA™ architecture, CULA provides users linear algebra functions with unsurpassed performance.

### **About EM Photonics**

Headquartered in Newark, Delaware, EM Photonics is a recognized leader in implementing computationally intense algorithms on commodity hardware platforms. Using specialized computer architectures such as GPUs and FPGAs, EM Photonics accelerates their clients' applications to achieve better, faster results. We offer consulting services and custom-designed tools to commercial, government, and academic organizations seeking to optimize their scientific computing, image processing, and numerical analysis applications.

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